

# Notice of Allowability

Application No.

09/886,354

Examiner

Ayal I Sharon

Applicant(s)

YOSHIZAWA, KEIJI

Art Unit

2123

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed 2/9/2005.
2. ☒ The allowed claim(s) is/are 1-12.
3. ☒ The drawings filed on 21 June 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All b) ☐ Some\* c) ☐ None of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

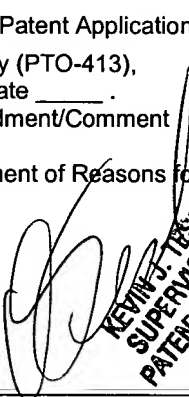
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
KEVIN J. TESKA  
SUPERVISORY  
PATENT EXAMINER

## **DETAILED ACTION**

### ***Introduction***

1. Claims 1-12 of U.S. Application 09/886,354, originally filed on 06/21/2001, are presented for examination. The application claims priority to Japanese application 2000-188197, filed on 6/22/2000.
2. The previous Office Action indicated that claims 4-6 and 10-12 were allowable, and presented the reasons for allowance of those claims. Those reasons for allowance are repeated verbatim in this Office Action.
3. The previous Office Action indicated that claims 1-3 and 7-9 were rejected under 35 U.S.C. §101 for being directed to non-statutory subject matter. The claims were directed to abstract mathematical algorithms.
4. With the exception of their non-statutory preambles, claims 1-3 and 7-9 were identical to claims 4-6 and 10-12, respectively.
5. The applicants have amended claims 1-3 and 7-9 to specify that the claims are directed to computer-implemented methods.
6. The Examiner has therefore withdrawn the 35 U.S.C. §101 rejections of claims 1-3 and 7-9. The reasons for allowance of these claims are described in detail below.

***Examiner's Statement of Reasons for Allowance***

**7. Claims 1-12 are allowed.**

8. The prior art used in the Examiner's reasons for allowance is as follows:

9. Ichiro et al., Japanese Patent Abstract Publication No. 05-334395. (Henceforth referred to as "**Ichiro**").

10. Liebmann et al., U.S. Patent 5,740,068. (Henceforth referred to as "**Liebmann**").

11. In regards to Claim 1, Ichiro teaches the following limitations:

1. (Currently Amended) A computer-implemented reduction processing method comprising:

an offset figure generating step for generating, based on a geometric figure having a plurality of vertices, an offset figure by translating sides, formed by joining said vertices, inwardly of said geometric figure by a distance equal to a prescribed sizing amount;

(Ichiro, especially Drawings 2A and 2B, as well as paragraphs [0011] to [0022] in the translated specification.)

While Ichiro does not teach the following limitations, Liebmann does teach them:

an offset locus line segment generating step for generating an offset locus line segment by joining each of said vertices to an offset vertex corresponding to said each vertex, said offset vertex being located on said offset figure;

(Liebmann, especially: Fig.9, Item 60 and col.7, line 65 – col.8, line 6)

an intersection point detecting step for detecting a first intersection point at which offset locus line segments associated with an adjacent pair of said vertices intersect each other;

(Liebmann, especially: Fig.9, Item 62 and col.8, lines 6-19)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Ichiro with those of Manabe,

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because doing so "... improves the accuracy of the [OPC] corrections by processing individual feature edges ...". (Liebmann, abstract).

However, neither Ichiro nor Liebmann, either individually, nor in combination, expressly teach the following limitations in combination with the above cited limitations:

an offset vertex deleting step for deleting the offset vertices each located at one end of one of the offset locus line segments intersecting at said first intersection point; and

an offset figure revising step for revising said offset figure by finding a second intersection point at which offset figure line segments, forming said offset figure by joining said offset vertices, intersect each other, and by setting said second intersection point as an offset vertex in place of said deleted offset vertices.

12. Claims 2-3 depend from allowable claim 1, and therefore are also allowable.

13. In regards to Claim 4, Ichiro teaches the following limitations:

4. A computer readable storage medium having a reduction processing program stored thereon for causing a computer to execute program steps comprising:

an offset figure generating step for generating, based on a geometric figure having a plurality of vertices, an offset figure by translating sides, formed by joining said vertices, inwardly of said geometric figure by a distance equal to a prescribed sizing amount;

(Ichiro, especially Drawings 2A and 2B, as well as paragraphs [0011] to [0022] in the translated specification.)

While Ichiro does not teach the following limitations, Liebmann does teach them:

an offset locus line segment generating step for generating an offset locus line segment by joining each of said vertices to an offset vertex corresponding to said each vertex, said offset vertex being located on said offset figure;

(Liebmann, especially: Fig.9, Item 60 and col.7, line 65 – col.8, line 6)

an intersection point detecting step for  
detecting a first intersection point at which offset  
locus line segments associated with an adjacent pair of  
said vertices intersect each other;  
(Liebmann, especially: Fig.9, Item 62 and col.8, lines 6-19)

It would have been obvious to one of ordinary skill in the art at the time the  
invention was made to modify the teachings of Ichiro with those of Manabe,  
because doing so "... improves the accuracy of the [OPC] corrections by  
processing individual feature edges ...". (Liebmann, abstract).

However, neither Ichiro nor Liebmann, either individually, nor in  
combination, expressly teach the following limitations in combination with the  
above cited limitations:

an offset vertex deleting step for  
deleting the offset vertices each located at one end of  
one of the offset locus line segments intersecting at  
said first intersection point; and

an offset figure revising step for  
revising said offset figure by finding a second  
intersection point at which offset figure line segments,  
forming said offset figure by joining said offset  
vertices, intersect each other, and by setting said  
second intersection point as an offset vertex in place of  
said deleted offset vertices.

14. Claims 5-6 depend from allowable claim 4, and therefore are also allowable.

15. In regards to Claim 7, Ichiro teaches the following limitations:

7. (Currently Amended) A computer-implemented reduction processing method which is  
applied to a difference figure generated by overlaying two geometric figures, to verify based on  
the size of said difference figure the validity of processing applied to each of said geometric  
figures, comprising:

an offset figure generating step for translating an imaginary straight line from each side of  
said difference figure inwardly of said figure by a distance equal to a prescribed sizing amount  
and thereby generating an offset figure bounded by said imaginary straight lines, and for storing a  
set of offset vertices included in said offset figure as a second vertex set;

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(Ichiro, especially Drawings 2A and 2B, as well as paragraphs [0011] to [0022] in the translated specification.)

While Ichiro does not teach the following limitations, Liebmann does teach them:

an offset locus line segment generating step for generating an offset locus line segment by joining each vertex of said difference figure to one of said offset vertices that corresponds to said each vertex;

(Liebmann, especially: Fig.9, Item 60 and col.7, line 65 – col.8, line 6)

an intersection point detecting step for detecting the presence or absence of a first intersection point at which two offset locus line segments extending from adjacent vertices of said difference figure intersect each other;

(Liebmann, especially: Fig.9, Item 62 and col.8, lines 6-19)

a sorting step for sorting said first intersection point in order of increasing distance, based on the distance between said first intersection point and the side of said difference figure which is associated with said two offset locus line segments intersecting at said first intersection point; and

(Liebmann, especially: Fig.9, Item 64 and col.8, lines 20-30)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Ichiro with those of Manabe, because doing so "... improves the accuracy of the [OPC] corrections by processing individual feature edges ...". (Liebmann, abstract).

However, neither Ichiro nor Liebmann, either individually, nor in combination, expressly teach the following limitations in combination with the above cited limitations:

a vertex revising step for computing a second intersection point which defines an intersection between two offset figure sides that extend from the offset vertices of said two offset locus line segments intersecting at said first intersection point selected by sorting, deleting said offset vertices associated with said selected first intersection point from said second vertex set, storing said second intersection point as a new vertex in said second vertex set, deleting from said first vertex set the vertices of said difference figure that are connected to said two offset locus line segments, and storing said selected first intersection point as a new vertex of said difference figure in said first vertex set.

Also, in regards to the following limitation, Liebmann refers to "edge projections" (e.g., col.5, lines 7-10 and lines 18-22; and Figs.3 and 4), but does

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not refer to the storage of vertices. Ichiro also does not expressly refer to the storage of vertices:

a first vertex set storing step for storing a set of vertices included in said difference figure as a first vertex set;

16. Claims 8-9 depend from allowable claim 7, and therefore are also allowable.

17. In regards to Claim 10, Ichiro teaches the following limitations:

10. A computer readable storage medium having a reduction processing method stored thereon for causing a computer to execute program steps wherein reduction processing is applied to a difference figure generated by overlaying two geometric figures, to verify, based on the size of said difference figure, the validity of processing applied each of said geometric figures, said program steps comprising:

an offset figure generating step for translating an imaginary straight line from each side of said difference figure inwardly of said figure by a distance equal to a prescribed sizing amount and thereby generating an offset figure bounded by said imaginary straight lines, and for storing a set of offset vertices included in said offset figure as a second vertex set; (Ichiro, especially Drawings 2A and 2B, as well as paragraphs [0011] to [0022] in the translated specification.)

While Ichiro does not teach the following limitations, Liebmann does teach them:

an offset locus line segment generating step for generating an offset locus line segment by joining each vertex of said difference figure to one of said offset vertices that corresponds to said each vertex; (Liebmann, especially: Fig.9, Item 60 and col.7, line 65 – col.8, line 6)

an intersection point detecting step for detecting the presence or absence of a first intersection point at which two offset locus line segments extending from adjacent vertices of said difference figure intersect each other; (Liebmann, especially: Fig.9, Item 62 and col.8, lines 6-19)

a sorting step for sorting said first intersection point in order of increasing distance, based

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on the distance between said first intersection point and the side of said difference figure which is associated with said two offset locus line segments intersecting at said first intersection point; and  
(Liebmann, especially: Fig.9, Item 64 and col.8, lines 20-30)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Ichiro with those of Manabe, because doing so "... improves the accuracy of the [OPC] corrections by processing individual feature edges ...". (Liebmann, abstract).

However, neither Ichiro nor Liebmann, either individually, nor in combination, expressly teach the following limitations in combination with the above cited limitations:

a vertex revising step for computing a second intersection point which defines an intersection between two offset figure sides that extend from the offset vertices of said two offset locus line segments intersecting at said first intersection point selected by sorting, deleting said offset vertices associated with said selected first intersection point from said second vertex set, storing said second intersection point as a new vertex in said second vertex set, deleting from said first vertex set the vertices of said difference figure that are connected to said two offset locus line segments, and storing said selected first intersection point as a new vertex of said difference figure in said first vertex set .

Also, in regards to the following limitation, Liebmann refers to "edge projections" (e.g., col.5, lines 7-10 and lines 18-22; and Figs.3 and 4), but does not refer to the storage of vertices. Ichiro also does not expressly refer to the storage of vertices:

a first vertex set storing step for storing a set of vertices included in said difference figure as a first vertex set;

18. Claims 11-12 depend from allowable claim 10, and therefore are also allowable.



***Correspondence Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ayal I. Sharon whose telephone number is (571) 272-3714. The examiner can normally be reached on Monday through Thursday, and the first Friday of a biweek, 8:30 am – 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska can be reached at (571) 272-3716.

Any response to this office action should be faxed to (703) 872-9306, or mailed to:

USPTO  
P.O. Box 1450  
Alexandria, VA 22313-1450

or hand carried to:

USPTO  
Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center 2100 Receptionist, whose telephone number is (571) 272-2100.

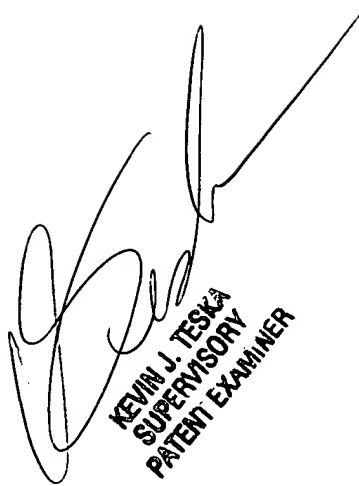
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April 1, 2005



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